WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004OR45B

Title: Satellite Remote Sensing of Wildfire Induced Changes in Hydro-Geomorphological Landscape Patterns and Processes

Project Type: Research

Focus Categories: Geomorphological Processes, Hydrology, Sediments

Keywords: Channel, erosion, geomorphology, hydrology, remote sensing, sediment, wildfire

Start Date: 02/15/2004

End Date: 02/14/2005

Federal Funds Requested: $10,618

Non-Federal Matching Funds Requested: $21,563

Congressional District: Oregon 5th

Principal Investigator:
Stephen Schoenholtz

Abstract

Severe wildfires result not only in dramatic changes in vegetation cover, but also induce significant changes in hydro-geomorphology. These changes may include decreased infiltration, increased overland flow, increased soil erosion, and debris-flow initiation during post-fire storm-events. A number of geomorphic variables (e.g., fire severity) have been identified that can lead to increased erosion activity; however, present methods of characterizing these variables within burnt basins may be both time-consuming and labor-intensive. Satellite remote sensing holds great potential for rapid assessment of these variables. This research proposes to use data from the Moderate resolution Imaging SpectroRadiometer (MODIS) and the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) to map and characterize burn-induced erosion variables at multiple spatial scales.